PROPOSED PLAN - OPERABLE UNIT
SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION
ROCKFORD, ILLINOIS

March, 1991

I. STATEMENT OF DOCUMENT'S PURPOSE

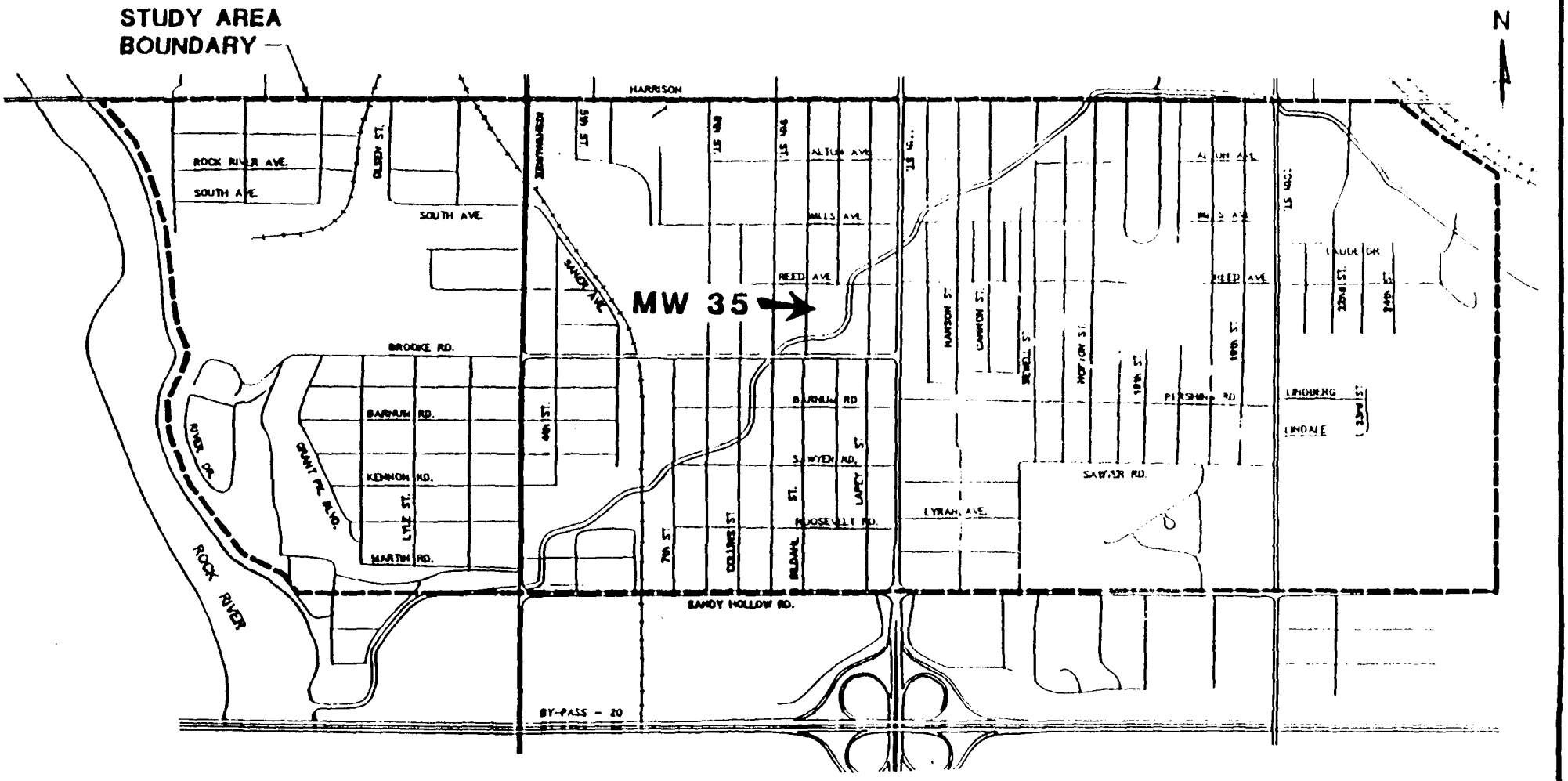
Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires publication of a notice and a Proposed Plan for site remediation. The Proposed Plan must also be made available to the public for comment. In general, the Proposed Plan will: identify the preferred alternative for a remedial action at a site or operable unit and explain the reasons for the preference; describe other remedial options that were considered in detail in the FS Report; solicit public review and comment on all the alternatives described; provide information on how the public can be involved in the remedy selection process.

This Proposed Plan is issued to describe the alternatives for the operable unit at the Southeast Rockford Groundwater Contamination Superfund site in Rockford, Illinois. This Proposed Plan summarizes the alternatives that have been considered for the site by the Illinois Environmental Protection Agency (IEPA). It also presents and evaluates the alternative preferred by IEPA and the United States Environmental Protection Agency (USEPA). The alternatives summarized in this Proposed Plan are described in the Feasibility Study (FS) Report. The FS Report, as well as any other pertinent documents in the Administrative Record (e.g. RI/FS Project Plans, RI Technical Memorandum, etc.), should be consulted for the in-depth details on the development and evaluation of the alternatives considered.

Public input on the operable unit alternatives and the information that supports these alternatives is an important contribution to the remedy selection process. Based on new information or public comment, IEPA and USEPA may modify the preferred alternative or select another response action presented in this plan and/or the FS Report. The public is encouraged to review and comment on all the technologies and alternatives considered for this operable unit for the Southeast Rockford Groundwater Contamination site.

II. SITE DESCRIPTION

The study area is located near Southeast Rockford in Winnebago County, and consists of approximately 2 to 3 square miles in Sections 1, 2, and 3, T43N, R1E and Section 6, T43N. R2E. The study area is bounded by Harrison Avenue to the north, Sandy Hollow Road to the south, the north-south center line of Section 6 to the east, and the Rock River to the west. The study area is shown in Figure 1-1. The study area has been expanded westward, southward, and eastward from the original study area boundaries, which were used to score the site for inclusion on the United States Environmental Protection Agency's (USEPA's) National Priorities List (NPL). The previous western boundary of the site was



CDM
environmental engineers, scientists, planners, & management consultants

SCALE: 0 0.5 MILES

SOUTHEAST ROCKFORD STUDY AREA

FIGURE NO. 1-1

8th Street, the previous southern boundary was Sawyer Road, and the previous eastern boundary was 21st Street. The Southeast Rockford site was proposed for inclusion on the NPL in June, 1988 and was added to the NPL in March, 1989. The site is being conducted as a state-lead, federally- funded Superfund project.

The study area is predominantly an urban residential area that includes scattered retail and commercial operations. A small industrial park is located near the eastern boundary of the study area in the vicinity of Laude Drive. The study area is predominantly flat-lying and slopes gently westward toward the Rock River, but locally contains low-relief hilly areas. Maximum topographic relief across the study area is approximately 120 feet. A small concrete-lined drainage ditch runs across the study area and discharges to the Rock River near the southwestern corner of the study area.

II. SITE HISTORY

Groundwater contamination by volatile organic compounds (VOCs) was initially discovered by the city of Rockford in four of its municipal wells in 1981. As a result of the contamination, the wells were taken out of service. In 1982, the city discovered that additional private wells were contaminated and subsequently closed down these wells. Contamination of Municipal Well 35, located near Ken Rock Playground, (Bildahl Street and Reed Avenue) was discovered during a routine sampling of the well in 1984; the well was tested for 33 priority pollutants and several VOCs were detected. Because contaminants were present at levels above the Safe Drinking Water Act Maximum Contaminant Level (MCL), the well was taken out of service in 1985. At present, VOCs are found in the well water samples on an irregular basis. The well is only operated on an as-needed basis, primarily in the summer months. Since 1985, the contaminant levels have tended to increase when the well is pumped regularly.

IEPA discovered that VOCs were present in Southeast Rockford's water in 1984 as a result of a report that plating wastes were being illegally disposed of in a well located at 2613 South 11th Street. In October 1984, IDPH initiated an investigation that involved sampling 49 wells in the vicinity of the well. While the investigation did not find significant levels of contaminants common to plating wastes, it did report high levels of chlorinated solvents. These same contaminants were detected in the city of Rockford's municipal well.

IDPH conducted four separate sampling investigations involving residential wells in the Southeast Rockford area: 49 samples were collected in 1984, 43 samples in 1985, 17 in 1988, and 267 in 1989. For the most part, sample locations varied during the separate sampling investigations; however, in some cases, wells were sampled more than once.

In 1986, the Illinois State Water Survey (ISWS) completed a project that involved a regional characterization of groundwater quality in Rockford. The study indicated that groundwater samples from public and private wells in the Southeast Rockford area contained significant concentrations of VOCs. Seven private well sites sampled in the

Southeast Rockford area, as part of the study, contained greater than 10 ug/l total VOCs; and 5 of those 7 contained greater than 100 ug/l total VOCs. One of the private wells containing greater than 100 ug/l total VOCs was located near the Rock River.

In August and October 1989, the USEPA Technical Assistance Team (TAT) sampled 112 residential wells in the Southeast Rockford area and tested for the following abbreviated list of VOCs:

* Trichloroethylene,
* Cis-1,2-Dichloroethylene,
* 1,2-Dichloroethane,
* 1,1,1-Trichloroethane,
* Trans-1,2-Dichloroethylene, and
* 1,1-Dichloroethane.

Fourteen of the 112 samples were analyzed using gas chromatograph/mass spectroscopy (GC/MS) for the above compounds and for 24 additional VOCs.

Metals had been analyzed in only a limited number of samples in the Southeast Rockford Operable Unit study area. Chromium was detected by IEPA in a 1984 investigation of illegal disposal of plating wastes in a well located at 2613 South 11th Street. Detailed information from this investigation is not available. Cadmium and lead were detected at levels in excess of the MCL in groundwater at Barrett's Mobile Home Park (Located at Harrison and Marshall) in 1988 during a routine IEPA investigation of community water supply wells. In the same study, arsenic was detected in one well at a concentration of 25% of the MCL for arsenic.

As a result of the sampling events by state and federal agencies, the Southeast Rockford site was proposed for inclusion on the NPL in June 1988 and was added to the National Priorities List (NPL) in March 1989. A removal action by USEPA included extending water mains and providing hookups to city water for residences with private wells contaminated with VOCs at levels greater than 25% of the Removal Action Level (RAL). USEPA began and completed construction of the water main extensions and residential hookups in 1990 resulting in connections for 287 residences.

IV. SCOPE AND ROLE OF OPERABLE UNIT

The objectives of the Operable Unit RI/FS are:

- To determine the extent of contamination in private wells; and
- To evaluate alternative water supply options for owners of private wells which have levels of contaminants in excess of the MCLs or are potential receptors of VOC contaminated groundwater.

The nature and extent of actual or potential contamination related to the study area was determined by collecting groundwater samples from 117 residential, industrial and municipal supply wells within the study area to address data gaps remaining from previous sampling events by USEPA/TAT and IDPH.

The results of the field investigation indicated a west-northwest trending plume of VOC contaminated groundwater extending across the study area from the vicinity of Reed Avenue and 24th Street to Rock River. The contaminant plumes for TCE, 1,1,1-TCA, cis-1,2-DCE, 1,2-DCA, and 1,1-DCA have the same general features. Vinyl chloride and trans-1,2-DCE were detected at only a few locations in the study area. PCE had an isolated, distinctly shaped plume.

Safe Drinking Water MCLs were exceeded for TCE, 1,1,1-TCA, cis-1,2-DCE, 1,2-DCA, 1,1-DCE, vinyl chloride, and lead, over various portions of the study area. The area where the TCE MCL is exceeded encompasses all of the other areas where an MCL is exceeded except for a small area stretching from approximately Harrison Avenue and Kinsey Street to Wills Avenue and Marshall Street, and a single well located near 9th Street and Sandy Hollow Road.

Groundwater contamination by metals does not show a systematic distribution comparable to that observed for VOCs. Instead, localized metals contamination occurs at scattered locations across the study area, and appears to be the result of several unrelated point sources. Only two of the 117 samples collected for the Operable Unit remedial investigation exceeded an MCL for any metal.

Contamination was detected above Safe Drinking Water Act MCLs for one or more contaminants at 25 of the 117 wells sampled in this investigation. Excess lifetime cancer risk levels at a number of these wells are significantly greater than generally accepted cancer risk limits. Risks incurred as a result of exposure to non-carcinogenic contaminants in these wells may be significant if dose additivity is assumed.

V. SUMMARY OF SITE RISKS

The purpose of this summary is to identify residences within the study area which were affected by the groundwater contamination and provide a solution to the water supply problem at those residences under a state-lead action. To determine whether any action was needed, IEPA relied primarily on MCLs developed under the authority of the federal Safe Drinking Water Act. For the VOCs analyzed in this investigation, the MCLs are numerically equivalent to the proposed Illinois Groundwater Quality Control (35 IL Admin. Code 620) for Class I Potable Resource Groundwater (Section 620.301). The proposed Illinois Groundwater Quality criteria are more restrictive than the MCLs for arsenic and cadmium, equivalent to the MCL for lead, and less restrictive than the MCL for chromium. The proposed MCLs were only used when final MCLs were not available.

Contamination was detected above an MCL for one or more contaminants in 25 of the 117 wells sampled. Contamination was detected at levels below MCLs at 60 of the 117 wells sampled. All but one of these wells is located west of 11th Street. The frequency of detection above MCLs is shown below for each contaminant.

CONTAMINANT	NO. OF WELLS DETECTED ABOVE MAXIMUM CONTAMINANT LEVELS
TCE	22
1,1-DCE	11
PCE	9
1,1,1-TCA	2
1,2-DCA	2
cis-1,2-DCE	2
Vinyl Chloride	1
Pb	2

The mixtures detected represent typical transformation pathways for volatile chlorinated aliphatic chemicals. Trichloroethylene (TCE) was detected at 53 of the 60 wells where contaminants were detected at concentrations below MCLs. In many cases, TCE was detected in combination with either a possible precursor, PCE, or its breakdown products, cis 1,2-DCE or 1,1-DCE. TCE and 1,1,1-TCA, contaminants that are not associated via their transformation pathways, were also frequently detected together.

At fifteen of these wells only one contaminant was detected. In nine of these cases TCE was the sole contaminant detected although PCE, cis-1,2-DCE, and 1,1,1-TCA were also detected as sole contaminants. In many of these wells only one carcinogenic substance and one non-carcinogenic substance comprised the mixture of contaminants detected. At 22 of these wells, the mixture of contaminants consisted of TCE and 1,1,1-TCA only.

VI. SUMMARY OF ALTERNATIVES

The FS identified and evaluated alternatives during the operable unit that could be used to address the threats and/or potential threats to the study area. The evaluation criteria consisted of: (a) protection of human health and the environment; (b) short-term effectiveness; (c) long-term effectiveness; (d) reduction of toxicity, mobility and volume of contaminants; (e) implementability; (f) cost; (g) compliance with ARARs; (h) state acceptance; and (i) community acceptance.

The alternatives evaluated for addressing the water supply options for owners of private wells which have levels of contaminants in excess of the MCLs are discussed below.

Alternative 1 - Connection of affected residences to the Rockford water system

- Estimated Construction Cost: $3,280,000
- Estimated Annual O&M Cost: (years 1-5) $436,800
  (years 6-30) $58,800
- Estimated Total Present Worth Cost (5%, 30 yr. life): $5,820,000
- Estimated Implementation Timeframe: 6 months

Under this alternative, all target addresses (243 residences) identified in the FS Report would be connected to city water. This would include construction of new watermains and service connections where no watermains currently exist and installation of service connections between already existing watermains and target addresses who are not connected to the utility. This alternative also includes the construction of a granular activated carbon water treatment facility at the existing M.W. 35 site. The treatment of M.W. 35 is necessary in order to allow the city to provide sufficient water supply during periods of peak demand. This alternative would achieve the Safe Drinking Water Act MCLs and water quality in the distribution system would be controlled by the Rockford Water Utility's extensive monitoring program.

Alternative 2 - Construction of new residential water wells

- Estimated Construction Cost: $5,290,000
- Estimated Annual O&M Cost: $109,400
- Estimated Total Present Worth Cost (5%, 30 yr. life): $6,970,000
- Estimated Implementation Timeframe: 18 months

Under this alternative, new residential wells would be constructed at all target addresses. All wells would derive groundwater from the St. Peter Sandstone aquifer. The well depth for each well, on an average, would be 260 feet deep. Assumptions are that this aquifer would provide an adequate supply of drinking water of acceptable quality and that the new wells could be constructed such that they would not provide a conduit for leakage of contamination from the upper sand and gravel aquifer to the St. Peter.

Alternative 3 - Point of entry (POE) water treatment devices

- Estimated Construction Cost: $850,000
- Estimated Annual O&M Cost: $1,129,000
- Estimated Total Present Worth Cost (5%, 30 yr. life): $18,250,000
- Estimated Implementation Timeframe: 18 months

Under this alternative, individual treatment units would be installed at each target address and would treat the raw well water prior to its delivery to the household distribution piping. Treatment of VOCs is usually performed by installing granular activated carbon filters which absorb the VOCs directly from the water flow. This technology can be expected to give reliable performance over extended periods of time but does require intermittent maintenance and testing throughout the life of the installation. This alternative would provide potable drinking water for each property served by POE treatment.

Alternative 4 - No action

- Estimated Construction Cost: $0
- Estimated Annual O&M Cost: $0
- Estimated Total Present Worth Cost (5%, 30 yr. life): $0
- Estimated Implementation Timeframe: Immediate

This alternative involves no remedial action for owners of private wells in the study area. This alternative will not reduce the threats to human health and/or the environment at the site. The inclusion of the no action alternative is required by law.

VII. PREFERRED ALTERNATIVE

The preferred alternative is Alternative 1. This alternative includes the connection of target addresses (243 residences) to the City of Rockford water system. New watermains and service connections will be constructed where no watermains currently exist and installation of service connections between already existing watermains and target addresses who are not connected to the utility. Also, M.W. 35 will be treated in order to allow the city to provide sufficient water supply during periods of peak demand. Based on new information or public comments, the State of Illinois, in consultation with USEPA, may later modify the preferred alternative or select another remedial action presented in this Proposed Plan and the RI/FS. The public, therefore, is encouraged to review and comment on all of the alternatives identified in this Proposed Plan. The RI/FS should be consulted for more information on these alternatives.

VIII. GLOSSARY OF EVALUATION CRITERIA

Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment engineering controls or institutional controls.

Compliance with ARARs addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other Federal and State environmental statutes and/or provide grounds for invoking a waiver.

Long-term effectiveness and permanence refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies that may be employed in a remedy.

Short-term effectiveness refers to the speed with which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

Cost includes capital and operation and maintenance costs.

Support Agency Acceptance indicates whether, based on its review of the RI/FS and Proposed Plan, the support agency concurs with, opposes, or has no comment on the preferred alternative.

Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the RI/FS report and the Proposed Plan.

IX. ANALYSIS OF ALTERNATIVES

a. Overall Protection - Alternatives 1 and 3 would provide adequate protection of human health by eliminating, reducing, or controlling risk through treatment, or engineering controls. None of the alternatives will remove the contamination threat to the environment, however, this will be addressed in the final remedy. Alternative 2 can not guarantee protection over the long term.

b. Compliance with ARARs - The Preferred Alternative (Alternative 1) and Alternative 3 would be in compliance with MCL standards as a result of water treatment. Compliance with MCL standards will not be guaranteed under Alternative 2 because the potential for future contamination remains until the final remedy. This alternative does not consider water treatment. Compliance would not be achieved under Alternative 4.

c. Long-term Effectiveness and Permanence - The Preferred Alternative would reduce long term risk to the target population. Water quality is controlled and supply is reliable. The Rockford Water Utility has an extensive monitoring program designed to control the water quality in the distribution system. Under Alternative 2, risk reductions are unknown over the long term. No control over the water quality is provided. Long-term risk could be eliminated under Alternative 3. Control over water quality would be provided through the regular monitoring of treated water and proper management of spent carbon. Alternative 4 does not provide for risk reduction or control of water quality.

d. Reduction of Toxicity, Mobility or Volume of Contaminants - Alternatives 1 and 3 provide for treatment of contaminants using GAC. Adsorption onto the GAC media will reduce the mobility of the contaminants. If the GAC media is regenerated, there will be destruction of the contaminants, thereby providing a reduction in the toxicity and volume of these contaminants. Alternatives 2 and 4 do not provide any reduction in toxicity, mobility, or volume of contaminants. The final RI/FS remedy will determine the methods to be used to reduce the toxicity, mobility, and volume of contaminants in the groundwater or in any source areas that may be discovered.

e. Short-term Effectiveness - Under the preferred alternative, it should take six months to complete the hook-ups to the Rockford water system and 4 months to complete the treatment facility for Well 35 (following the Remedial Design). All construction would be completed in 6 months if done concurrently. No short-term impacts to the health of the construction workers or the community should occur during the construction activities since construction should all occur above the contaminated groundwater. Under Alternative 2, construction of all new wells should be completed within 18 months after completion of the remedial design, although some individuals would have their new wells in place before that time. Workers could potentially be exposed to contaminants during the drilling process; however, proper use of protective clothing, respiratory protection, and safety procedures should minimize this exposure. Under Alternative 3, installation of the POE treatment units would be completed within 18 months after the completion of the remedial design, although some individuals would have their units installed before that time. The installation process should not result in any short-term health impacts for the homeowners; however, workers installing the units could experience some exposure to the contaminants in the water during the installation process. Proper use of safety precautions should minimize this exposure. The No-Action Alternative would not result in any short-term health or environmental impacts.

f. Implementability - The materials, labor, and equipment needed to implement Alternatives 1, 2, and 3 are generally readily available. Construction/installation techniques are routine. Some normal disturbances/inconveniences would be experienced by the community/ homeowners. Under Alternative 2, permits for the well installation would need to be obtained from the Illinois Department of Public Health, which could delay the implementation of this alternative. For Alternative 1, the Rockford water system is self-permitting for the construction of the water mains and connections. Since Alternative 4 involves no action, there are no implementation issues.

g. Cost - For the Preferred Alternative and each other alternative, the total remedial costs (construction and annual operation and maintenance) in present worth are:

- Preferred Alternative (Alternative 1) $ 5,820,000
- Alternative 2 $ 6,970,000
- Alternative 3 $18,250,000
- Alternative 4 $ 0

The Preferred Alternative is the most cost-effective of the four alternatives.

h. Support Agency Acceptance - The United States Environmental Protection Agency supports the Preferred Alternative.

i. Community Acceptance - Community acceptance of the preferred alternative will be evaluated after the public comment period and will be described in the Record of Decision for the site.

X. SUMMARY OF STATUTORY FINDINGS

In summary, the preferred alternative is believed to provide the best balance of trade-offs among alternatives with respect to the criteria used to evaluate remedies. Based on the information available at this time, therefore, the State of Illinois and USEPA believe the preferred alternative would protect human health, would comply with ARARs, would be cost-effective, and would utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. However, this is an interim action to provide residents with safe drinking water; the preference for treatment will be addressed in the final remedy.

XI. THE COMMUNITY'S ROLE IN THE SELECTION PROCESS

The IEPA solicits input from the community on the cleanup methods proposed for each Superfund response action. The IEPA has set a public comment period to begin on March 18, 1991 and end on April 23, 1991 to encourage public participation in the selection process. The comment period includes public informational meetings and, as required by Illinois law, a public hearing. Ten (10) informational meetings will be held to present the FS Report and the Proposed Plan to interested citizens and to answer questions. All of these meetings will be held at the Ken-Rock Community Center (3218 South 11th Street, Rockford) at 2:00 p.m. and 7:00 p.m. on April 3, 4, 9, 10 and 11, 1991.

The public hearings will be held at 2:00 p.m. and 7:00 p.m. on April 17, 1991 at the Ken Rock Community Center to present the FS Report and the Proposed Plan, answer questions and receive written and oral comments. Written comments on the Proposed Plan should be mailed to IEPA Hearing Officer John Williams, IEPA, 2200 Churchill Road, P.O. Box 19276, Springfield, Illinois 62794-9276, telephone number 217/782-5522. Questions on the project should be directed to Virginia Wood, Community Relations Coordinator, IEPA, 2200 Churchill Road, P.O. Box 19276, Springfield, Illinois 62794-9276, telephone number 217/782-5562.

Comments and responses to comments will be provided in the Responsiveness Summary Section of the Record of Decision (ROD). The ROD is the document that presents the operable unit remedy selected by IEPA and USEPA.

Information about the remedial investigation, feasibility study and the Superfund process is available at the Rock River Branch of the Rockford Public Library and the Ken-Rock Community Center. The majority of this information consists of fact sheets, brochures, and technical summaries which will be freely distributed. Other documents, such as the final report on the remedial investigation, will be available for examination and copying but must remain at the public repository.

Likewise, the Administrative Record for the Southeast Rockford Site has been placed at Rock River Branch of the Rockford Public Library and the IEPA (2200 Churchill Road, Springfield) for public inspection. The Administrative Record includes all documents reviewed by the IEPA and the USEPA, that were relied on in the remedy selection. These include the Proposed Plan, RI Technical Memorandum, FS Report, data analyses, transcripts and other relevant material. Questions about the Administrative Record and any other documents within this repository should be directed to Virginia Wood, Community Relations Coordinator, IL EPA, 2200 Churchill Road, P.O. Box 19276, Springfield, IL 62794-9276 (217/782-5562).

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